

## CLAIMS

I claim:

- 1     1.     A method of requesting genomics services from a service provider and providing  
2     genomics services to a client comprising:  
3         under control of said client,  
4             providing one or more biological samples;  
5             identifying one or more genome sequences;  
6         under control of said service provider,  
7             obtaining said samples and said genome sequences;  
8             providing one or more microarrays wherein each of said microarrays contains at  
9             least one of said genome sequences;  
10            applying at least one of said biological samples to at least one of said  
11            microarrays; and,  
12         under control of said client,  
13            receiving data representative of said applying step over the Internet.
- 1     2.     The method of Claim 1 wherein said genome sequence comprises a single nucleotide  
2     polymorphism.
- 1     3.     The method of Claim 1 wherein said step of providing one or more biological samples  
2     comprises:  
3         under control of said service provider;

1                   providing a repository of biological samples;  
2                   providing a catalog of said repository;  
3                   under control of said client;  
4                   accessing said catalog; and,  
5                   selecting said biological samples from said catalog.

1       4.       The method of Claim 3, wherein said steps of providing a catalog and accessing said  
2       catalog occur over an Internet connection between said client and said service provider.

1       5.       The method of Claim 4 wherein said Internet connection is a secure Internet connection.

1       6.       The method of Claim 1 wherein said one or more biological samples comprises tissue  
2       samples.

1       7.       The method of Claim 1 wherein said one or more biological samples comprises DNA  
2       samples.

1       8.       The method of Claim 1 further comprising the step of analyzing said data representative  
2       of said applying step.

1       9.       The method of Claim 8 wherein said analyzing step occurs under control of said client.

1     10.    The method of Claim 8 wherein said analyzing step occurs under control of said service  
2     provider.

1     11.    The method of Claim 1 wherein said data representative of said applying step comprises  
2     genotype data.

1     12.    The method of Claim 1 wherein said step of providing one or more biological samples  
2     comprises transporting said samples from said client to said service provider.

1     13.    The method of Claim 12 wherein said data representative of said applying step comprises  
2     gene expression data.

1     14.    The method of Claim 12 wherein said one or more biological samples comprises total  
2     RNA samples.

1     15.    The method of Claim 12 wherein said one or more biological samples comprises poly-A  
2     RNA samples.

1     16.    A method of requesting proteomics services from a service provider and subsequently  
2     providing proteomics services to a client comprising:

3             under control of said client,

4             providing one or more biological samples;

5 identifying one or more antigens;  
6 under control of said service provider,  
7 obtaining said samples and identified antigens;  
8 providing one or more microarrays wherein each of said microarrays contains  
9 probes to detect at least one of said identified antigens;  
10 applying at least one of said biological samples to said microarrays; and,  
11 under control of said client,  
12 receiving data representative of said applying step over the Internet.

1 17. The method of Claim 16 wherein said step of providing one or more biological samples  
2 comprises:

3 under control of said service provider;  
4 providing a biological sample repository;  
5 providing a catalog of said biological repository;  
6 under control of said client;  
7 accessing said catalog; and,  
8 selecting said biological samples from said catalog.

1 18. The method of Claim 17, wherein said steps of providing a catalog and accessing said  
2 catalog occur over an Internet connection between said client and said service provider.

1 19. The method of Claim 18 wherein said Internet connection is a secure Internet connection.

1     20.     The method of Claim 1 or Claim 16 further comprising applying a unique identifier to  
2     each of said one or more biological samples.

1     21.     The method of Claim 20 wherein said applying step is performed under control of said  
2     client.

1     22.     The method of Claim 20 wherein said applying step is performed under control of said  
2     service provider.

1     23.     The method of Claim 20 further comprising tracking said one or more biological samples  
2     using said unique identifier.

1     24.     The method of Claim 23 wherein said tracking step is performed under control of said  
2     client.

1     25.     The method of Claim 23 wherein said tracking step is performed under control of said  
2     service provider.

1     26.     A process for remotely selecting samples from a biological repository comprising:  
2     under control of a service provider;  
3     providing a database of said samples in said biological repository;

4                   providing a network connection to said database accessible by a client;  
5                   under control of a client;  
6                   accessing said database over said network; and,  
7                   selecting a subset of said samples from said biological repository.

1       27.    The process of Claim 26 wherein said network is the Internet.

1       28.    The process of Claim 26 wherein said database includes clinical records corresponding  
2       to at least a portion of said samples.

1       29.    The process of Claim 26 wherein said database includes phenotype information  
2       corresponding to at least a portion of said samples.

1       30.    The process of Claim 26 wherein said database includes follow-on medical history  
2       information corresponding to at least a portion of said samples.

1       31.    A process for remotely conducting a genomics experiment comprising:  
2               under control of a service provider;  
3               providing a database of biological samples in a biological repository;  
4               providing a network connection to said database accessible by a client;  
5               under control of a client;  
6               accessing said database over said network;

7                   selecting a subset of said samples from said biological repository;  
 8                   identifying a set of genomic sequences;  
 9                   under control of said service provider;  
 10                  determining if said genomic sequences are present in said samples; and,  
 11                  informing said client of results of said determining step.

1    32.   The process of Claim 31 further comprising under control of said service provider:  
 2           modifying said set of genomic sequences subsequent to said informing step.

1    33.   The process of Claim 31 further comprising identifying said samples with unique  
 2           identifiers.

1    34.   The process of Claim 33 further comprising  
 2           under control of said client:  
 3                  selecting a sample from said subset of samples;  
 4                  determining a unique identifier corresponding to said selected sample;  
 5                  requesting status information regarding said identifier;  
 6           under control of said service provider:  
 7                  determining status of said identifier; and,  
 8                  informing said client of said status.

1    35.   A method of providing genomics services to a client comprising:

2 receiving one or more biological samples from said client;  
3 receiving one or more genome sequences from said client;  
4 providing one or more microarrays wherein each of said microarrays contains at least one  
5 of said genome sequences;  
6 applying at least one of said biological samples to at least one of said microarrays; and,  
7 transmitting data representative of said applying step to said client over the Internet.

1 36. A method of providing genomics services to a client comprising:  
2 receiving one or more biological samples from said client over the Internet;  
3 receiving one or more genome sequences from said client;  
4 providing one or more microarrays wherein each of said microarrays contains at least one  
5 of said genome sequences;  
6 applying at least one of said biological samples to at least one of said microarrays; and,  
7 transmitting data representative of said applying step to said client.

1 37. A method of providing genomics services to a client comprising:  
2 receiving one or more biological samples from said client;  
3 receiving one or more genome sequences from said client over the Internet;  
4 providing one or more microarrays wherein each of said microarrays contains at least one  
5 of said genome sequences;  
6 applying at least one of said biological samples to at least one of said microarrays; and,  
7 transmitting data representative of said applying step to said client.



- 1     38.    A method for providing experimental biological services to a client comprising:  
2            receiving a work order from said client comprising a biological sample portion listing  
3                one or more biological samples and an assay portion listing one or more  
4                experiments based on said biological samples;  
5            performing said one or more experiments on said one or more biological samples; and,  
6            transmitting data representative of said performing step to said client.
- 1     39.    The method of Claim 38 wherein said biological sample portion of said work order  
2            comprises one or more biological samples submitted by said client.
- 1     40.    The method of Claim 38 wherein said biological sample portion of said work order  
2            comprises one or more pointers to records in a biological sample database.
- 1     41.    The method of Claim 38 wherein said assay portion of said work order comprises an  
2            experimental protocol and a specification of one or more probes.
- 1     42.    The method of Claim 41 wherein said performing step further comprises:  
2            providing one or more microarrays onto which said one or more probes is deposited; and,  
3            interrogating said one or more biological samples with said one or more microarrays.
- 1     43.    The method of Claim 42 wherein said one or more probes are immobilized to a substrate.

1 44. The method of Claim 43 wherein said one or more probes are immobilized on a flat  
2 surface.

1 45. The method of Claim 43 wherein said one or more probes are immobilized in a three-  
2 dimensional polymer.

1 46. The method of Claim 43 wherein said one or more probes are immobilized on bead  
2 surfaces.

1 47. The method of Claim 42 wherein said one or more probes are in solution.

1 48. The method of Claim 38 wherein said receiving step further comprises receiving said  
2 biological sample portion of said work order from a remote location.

1 49. The method of Claim 38 wherein said receiving step further comprises receiving said  
2 assay portion of said work order from a remote location.

1 50. The method of Claim 38 wherein said transmitting step further comprises transmitting  
2 said data to a remote location.

1 51. The method of Claim 38 wherein said receiving step further comprises receiving said  
2 biological sample portion of said work order over the Internet.

1 52. The method of Claim 38 wherein said receiving step further comprises receiving said  
2 assay portion of said work order over the Internet.

1 53. The method of Claim 38 wherein said transmitting step further comprises transmitting  
2 said data over the Internet.

1 54. The method of Claim 38 wherein said one or more biological samples comprises tissue  
2 samples.

1 55. The method of Claim 38 wherein said one or more biological samples comprises DNA  
2 samples.

1 56. The method of Claim 38 wherein said one or more biological samples comprises total  
2 RNA samples.

1 57. The method of Claim 38 wherein said one or more biological samples comprises poly-A  
2 RNA samples.

1 58. The method of Claim 38 wherein said assay portion of said work order comprises a list  
2 of genes.

1 59. The method of Claim 38 wherein said assay portion of said work order comprises a list  
2 of single nucleotide polymorphisms.

1 60. The method of Claim 38 wherein said assay portion of said work order comprises a list  
2 of proteins.